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【238】 Detection and Analysis of Low-Energy Electrons by means of a Miniature Energy Analyser: Experimental Characterisation and Preliminary Results

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With the aim of improving detection and analysis of Low-Energy and Secondary Electrons (LEEs and SEs of $\leq 100\text{eV}$) in the Scanning Field-Emission Microscope (SFEM) tests are performed on a miniature electron detection unit employing a Bessel Box energy analyser. In electron microscopes, detection of LEEs is inherently difficult due to the presence of electrostatic (and magnetic) fields in proximity of the beam-target interaction region, inhibiting the escape of SEs and complicating the interpretation of their detected signal. The reduced dimensions of such a compact energy analyser (length of $1\frac{1}{2}$ channeltrons) consents its employment close to the sample surface, thus minimising the aforementioned fields effects. Experimental results demonstrating the capability of this analyser to collect electron spectra are discussed.

Primary author: Dr BELLISSIMO, Alessandra (Laboratory for Solid State Physics, ETH Zurich)

Co-authors: Prof. PESCIA, Danilo (ETH Zürich); Mr SURI, Ashish (Department of Electronics, University of York); Dr WALKER, Christopher (Department of Physics, University of York); Dr TEAR, Steve (Department of Physics, University of York, York, UK)

Presenter: Dr BELLISSIMO, Alessandra (Laboratory for Solid State Physics, ETH Zurich)

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